

# LINE POWERED LOOP EXTENDER WITH COMMUNICATIONS, CONTROL, AND DIAGNOSTICS

## ABSTRACT OF THE DISCLOSURE

A DSL network for improving the transmission of DSL signals includes a plurality of local loops for transmission of upstream and downstream DSL signals, control signals, and DC power, a plurality of loop extenders with communications, control, and diagnostic functionality for amplifying the DSL signals, a loop extender communications/power supply for receiving the DC power and control signals, providing DC power to the plurality of loop extenders, and broadcasting the received control signals to the plurality of loop extenders, and a central office controller/power supply for controlling access to the plurality of local loops and controlling the plurality of loop extenders.